



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,955	12/06/2004	Bernd Gromoll	1454.1586	8626
21171	7590	10/17/2008		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER SCHEUERMANN, DAVID W	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 10/17/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/516,955

**Applicant(s)**

GROMOLL ET AL.

**Examiner**

DAVID W. SCHEUERMANN

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No.(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No.(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments filed 7/30/2008 have been fully considered but they are not persuasive in view of the new grounds of rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, 15, 16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fidei, US 3634705 in view of, Fechheimer, US 2285960 and in further view of Koizumi, US 5203399. Fidei, US 3634705 shows:

An electrical machine, comprising:

a rotor rotably mounted; (inherent)

a stator associated with said rotor in a stationary position 10 and containing a stator winding; and

a cooling device, cooling at least parts of said stator, including

[a refrigeration unit comprising at least one cold head (8, Koizumi, US 5203399) having a condenser area with at least one cold surface; and

a closed cooling line system (inherent) being thermally coupled to he cold surface (note the inside surface of the winding cooling tube), Koizumi, US 5203399) of said refrigeration unit in said condenser area and containing;]

a coolant supply line at one axial end of the stator winding and a coolant return line at thee other axial end of the stator winding (this feature is shown if Fidei, US 3634705, note connectors 32, one connected to inlet header 30 and another connected to outlet header 31 as shown in figure 1);

[a coolant thermally coupled to the cold surface of the cold head (8, Koizumi, US 5203399), and said cooling line system thermally coupling said cold head to the heat generating parts of said stator to be cooled with the stator winding, having discrete coolant areas associated with the heat generating parts of said stator to be cooled and being thermally, conductively connected over a large area to the stator parts to be cooled;

wherein the heat generating parts of said stator are located at a geodetic lower level than the cold surface of the cold head (see figure 1, Dustman), and

in which the coolant is circulated by a thermosiphon effect with boiling and vaporizing, the coolant being heated or partially vaporized in the discrete coolant areas and being flowing by natural convection without mechanically pumping.,

said machine further comprising flow paths for **air cooling**]

The secondary references can be applied independently to the base reference (Fidei, US 3634705). Fidei, US 3634705 does not expressly disclose “**air cooling**”. Fechheimer, US 2285960 teaches the equivalence between air and hydrogen cooling in the field of electrical generator cooling, see column 1 lines 15 and 16. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to replace the hydrogen cooling system of Fidei, US 3634705 with an equivalent gas cooling system. One of ordinary skill in the art would have been motivated to do this to reduce the hazard of using hydrogen.

Fidei, US 3634705 does not expressly disclose the bracketed material. Koizumi, US 5203399 teaches using a thermosiphon to circulate cooling fluid for the inherent purpose of eliminating the need for a mechanical pump. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to replace circulation pump 55 of Fidei, US 3634705 with a thermosiphon system of Koizumi, US 5203399. One of ordinary skill in the art would have been motivated to do this so that no separate pump is needed.

Furthermore, Koizumi, US 5203399 provides for using his cooling system in its broader aspects and is not limited to the specific details and representative devices shown and described within his patent as set forth in column 12 lines 57-64. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a refrigeration unit with a cold head in to cool cooling fluid of the device of Fidei, US 3634705. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect.

Finally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a vaporizable coolant as taught by Koizumi, US 5203399, see paragraph bridging columns 5 and 6. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a two-phase coolant in the device of the combination of Fidei, US 3634705. One of ordinary skill in the art would have been motivated to do this the take advantage of the large heat capacity of the latent heat of vaporization of the cooling fluid to more effectively cool the stator.

Re claims 14, 16, 18, and 20 note the radial vent ducts in the laminated core as described in column 2, lines 65-70 of Fidei, US 3634705

Re claims 15 and 19, note that connectors 32, as shown in figure 1, one connected to inlet header 30 and another connected to outlet header 31 connect the axial ends of the coolant channel passing through core 10.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2834

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID W. SCHEUERMANN whose telephone number is (571)272-2035. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached at (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/D. W. S./  
Examiner, Art Unit 2834  
October 19, 2008

/Karl I.E. Tamai/  
Primary Examiner, Art Unit 2834